

- 20 -

**What is claimed is:**

1. A method for printing grey scale images on a printing medium, the method comprising
  - 5 - delivering at least a number of first droplets of printing material of a colour with a first volume from a first printhead and a number of second droplets of printing material of that colour with a second volume from a second printhead, the first volume and the second volume being different,
  - 10 - merging together said number of first droplets and said number of second droplets on a target pixel position on the printing medium to obtain a given greyscale dot on the printing medium.
2. A method according to claim 1, wherein the first printhead is for  
15 delivering droplets of a single volume, equal to said first volume, and the second printhead is for delivering droplets of a single volume, equal to said second volume.
3. A method according to claim 1, furthermore comprising a dithering  
20 step to increase the number of reproducible grey scale tones.
4. A method according to claim 1, furthermore comprising a dithering step to locally mask defects in generating a greyscale dot.
- 25 5. A method according to claim 1, the first printhead and the second printhead respectively having a first and a second intrinsic droplet frequency, a nominal printing frequency of the printing method being the lowest of the first and the second intrinsic droplet frequencies, the method further comprising printing at  
30 the nominal printing frequency.
6. A method according to claim 1, the first printhead and the second printhead respectively having a first and a second intrinsic droplet frequency, a nominal printing frequency of the printing  
35 method being the lowest of the first and the second intrinsic droplet frequencies, the method further comprising printing at a

- 21 -

printing frequency which is lower than the nominal printing frequency.

- 5 7. A method according to claim 6, wherein the printing frequency is at least 5 kHz and the number of droplets that can be delivered at a pixel position by each printhead is at least two.
8. An ink jet printer suitable for printing grey scale images onto a printing medium, the printer comprising
  - 10 - at least a first printhead and a second printhead for a colour, each printhead having a plurality of marking elements arranged in a row, the first printhead being provided for delivering first droplets of printing material of that colour with a first volume and the second printhead being provided for delivering second
  - 15 droplets of printing material of that colour with a second volume, the first and the second volume being different from each other,
  - a drive system to drive said at least first printhead and second printhead with a frequency so that a pixel to be created
  - 20 with said first and second droplets is formed by merging together said first and second droplets on a position of said pixel on the printing medium.
9. An ink jet printer according to claim 8, wherein the first
- 25 printhead is for delivering droplets of a single volume, equal to said first volume, and the second printhead is for delivering droplets of a single volume, equal to said second volume.
10. Method of extending a printer lifetime of a printer according to
- 30 claim 8, wherein if a marking element of a printhead for a specific colour is defective, printing with this marking element is replaced by printing with a corresponding marking element from another printhead for that specific colour.
- 35 11. Method of preventing image artefacts when printing with a printer according to claim 8, wherein if a marking element of a printhead

- 22 -

for a specific colour is defective, printing with this marking element is alternated with or replaced by a dithering pattern formed by printing with a corresponding marking element on a second printhead for that specific colour.

5

12. Method of preventing image artefacts when printing with a printer according to claim 8, wherein if a marking element of a printhead for a specific colour is defective, a dithering pattern is used including marking elements from the printhead and from another
- 10 printhead for that specific colour, the position of the marking elements used corresponding to or neighbouring the defective marking element.